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Oil and the Energy Problem

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Ever since the human race came down from the trees, it has been moving from one mix of energy sources to another, depending on which has cost the least. Sometimes the adjustment has taken individuals pretty far. Some even migrated from Old to New England to keep warm. The climate was harsher, but firewood was dirt cheap. "Here is good living for them that love good fires," wrote Henry Higginson in the 1830s.

But using a given fuel not only poses costs in the labor and capital needed to get it, but also in protecting the environment. Millions of bone-poor people are further impoverished today by burning dung, thus robbing the soil of its fertility. Those better off must worry about coal smoke and nuclear wastes.

The transition from one energy mix to another is slow because it can be summed up in one word: *investment*. It involves changing over the whole capital stock of society. The tangibles—buildings and machinery in which we live, work, and travel—are no more important than the intangibles—habits and methods. Even when new technologies are known and perfected and repay the cost of installation, it seems to take about nine years to replace half of the energy-using equipment, nine more years to replace half of the remaining half, and so on. But when the technology is in the early stages, all bets are off. Hence, "alternative energy sources" like large scale solar power are for the sweet by-and-by. It is worth spending large sums to study and perfect them, but they have no relevance for this generation or the next. Maybe they will help in the twenty-first century.

Public opinion on energy matters is bemused by the notion that there can be an energy "gap" or "shortage". But as Porgy and Bess might have said, a shortage is a sometime thing. Past a winter, if the demand for energy exceeds the supply, the price rises until the gap is closed. The price rise brings discomfort in rich countries, and kills thousands in poor countries. The more we worry about the nonexistent "shortage", the less we can cope with the real problems.

Of course the most disturbing and difficult part of the energy picture is oil, particularly imported oil. Worldwide there is no lack of oil in the ground. The proven reserves, in relation to production, are higher than they were forty years ago, though they are decreasing in the United States. This does not prove that things have been getting better all the time. "Proven reserves" are only the ready shelf inventory. In a competitive industry, more reserves and productive capacity are developed when there is profit from providing more. But a monopoly can make even more money by not providing more capacity.

Over the last ten years, a small group of nations has controlled the world supply of crude oil, and raised the price by a factor of 13, *after* allowing for inflation. They will raise it even more. Nobody knows in advance what the traffic will bear. The market response is so slow and uncertain that probably nobody will know even years afterward. The cartel nations (the members of OPEC, the Organization of Petroleum Exporting Countries) know it no better than the rest of us. They will probably overshoot and raise the price too high even for their own good. Some of them want higher prices than others. All of them, without exception, want a much higher price than exists now. In particular, Saudi Arabia was the most important single force in raising the price from \$7 to \$10.50 in 1974, and from \$12.50 in late 1978 to \$32 per barrel today. The official legend holds them to be good guys; the public record shows them as no different from the others, except as the biggest restrictor of supply. With 45 fields known, they operate 15; from drilling 177 wells in 1973, they are down to 55 in 1979—not to "conserve," but because high prices are cutting demand faster than expected.

Consumption of oil in 1980 was actually less than in 1973 in the non-Communist world (excluding the OPEC countries, where oil is not a normal commodity but a freebee). It will probably keep going down, while energy consumption of all types stagnates or grows very slowly. This is unprecedented. Not even in the Great Depression did we see an eight year stagnation. There was a small decline in 1930-33, and a new record established in 1935.

The primary reason is found in the higher prices of 1973-74. As noted earlier, the consumption response is through investment, and works slowly. (The "conservation ethic," harassing people to lower their thermostats, laws to stop oil burning in utilities someday, somewhere are negligible.) The slow-acting effects of the 1973 price explosion were discernible by 1978. The much bigger price hikes of

1979 are just beginning to be felt. These effects, plus slow worldwide economic growth, will keep worldwide oil consumption declining for years. If the cartel continues raising the price, consumption will decline even more.

There is no free lunch. People cut back consumption by spending money for new houses, more fuel-efficient automobiles, office buildings, etc. and for retrofitting their old buildings and equipment. Providing more energy is also expensive. Together, they cost a huge amount which is not available to increase capacity in producing all kinds of goods and services. In other words, the process decreases economic growth. But this is the least bad adjustment we can make.

As consumption declines, output in the non-OPEC nations has very slowly increased. OPEC exports have been declining since 1973, and will decrease more. In the United States, oil production has been stable for about two years, and imports are off by one-fourth since the 1977 peak—with no thanks to noise from Washington.

This sounds like a forecast of "no tight markets" and stable prices. Nothing of the kind. The cartel of the OPEC nations exists to create shortage and raise prices despite ample supply. The less we demand, the less they will produce. The slogans with which our citizens like to beat each other over the head are meaningless. We will neither produce nor conserve our way out of a nonexistent crisis.

We have two real problems. First, the high and rising prices. Our guiding principle should be—don't make things worse. Price controls on oil and gas have made things considerably worse. The misnamed windfall profits tax is really price control at a higher level. And price controls misinform producers and consumers. They prevent both parties from making the investment needed to bring about lower consumption and higher production. As noted earlier, this investment is a burden on the economy. But it pays off because the total cost of the energy saved or conserved is less than the cost of imported oil.

If gasoline prices had been allowed to rise seven years ago, automobile buyers would gradually have straggled toward smaller and more fuel-efficient cars. Instead, the low and even decreasing price of gasoline, in relation to prices of other goods and services, induced consumers to keep buying the same old cars. Then, in 1979 consumers did not straggle but stampeded towards smaller cars. Detroit has been thrown into convulsions. Chrysler is on the brink, while Ford and GM are losing money, and the cry goes up to make a bad situation even worse. Trying to keep out Japanese imports will do both economic and political damage.

The net result is that oil and gas which could be produced more cheaply than it costs to buy foreign oil are left in the ground. The economy as a whole pays more for its fuel, because foreign oil costs more than the aborted unproduced oil and gas. This is done to subsidize the energy consumption of rich, poor, and middle class families; the chemical industry, the airlines, the truckers, and other industries. Of course, it makes no economic sense. The real reason is the desire to bash the oil companies.

High oil and gas prices mean windfall gains to the producers, not to mention coal miners, heating control

manufacturers, and many others. The income tax, individual and corporate, would take more than half of these windfall gains in order to deprive the detested oilman of his half.

So much for the first big problem, the price level. The other problem with oil imports is insecurity of supply. This will be helped little by even the best kind of policy. Our imports will probably be decreasing, but even if they went down to zero, we would still be insecure because our allies will import large amounts. And the shock to the world economy of a short term oil shortage is a shock to us immediately.

When supply is uncertain, buyers bid for much more than they want to consume. The penalties of running dry are so great that oil will be pursued even at the most extravagant price. The excess demand is channeled into the thin spot market, making prices explode.

Supply will continue to be uncertain for many years. It is hard to see the end of the condition. First, the "Arab oil weapon" might be used again. More important is the permanent political instability of the producing nations. Internally, the "outs" can only replace the "ins" through conspiracy and violence. So it is best not to be too cozy with any such government. Iran should have taught us that lesson, but we still cling to the illusion that the Saudi regime is strong. These nations are also unruly to each other. The Iranians call Iraqis "infidels", and the Iraqis recall that they had to teach the "insolent Persians" a lesson in 650 A.D. and will again do so now. These 1300-year-old hatreds may last for another 1300 years.

But even this instability does not explain why prices have exploded these last two years even when production equals or substantially exceeds consumption. The basic reason is in the brinkmanship of the OPEC nations, especially the Persian Gulf core. Before 1978, they fixed a price and supplied all demand at that price. But there would chronically be a glut on the market, and some price competition at the margin. For this and other reasons, the 1974-77 price increases were relatively small, and soon cancelled by the general inflation. Our comfort was their discontent.

In 1978, these nations turned to direct production control, and raised the price by 160 percent. The new system, therefore, is a great success. Unless it gives the cartel nations even bigger headaches than the old system, they will keep it.

But under the new system, production levels are set in advance. Not knowing current supply and demand, the producing nations are bound to overshoot or undershoot, producing either a glut or a shortage. These nations will risk a shortage to prevent a glut. But then a hint or fear of shortage makes buyers rush in to over-order and create the shortage. There was no other reason for the 1979 price explosion. Consumption was less than production, which was less than actual capacity, which in turn was far below potential capacity. It still is.

Stockpiles will not help our first problem, will not keep prices from rising in the long run. But they are the only way to cope with supply fluctuations and uncertainty, and to prevent price explosions. We saw the proof last year. The Iran-Iraq war cut production more than the Iranian revolution in

1978-79. Yet the price response was very mild. Inventories made the difference. These were mostly private. But public stockpiles are necessary, as a deterrent, and to prevent panic. They are more important as a preventive than as a cure.

If buyers are assured of supply even at a high price, they will not panic and over-order. Then market demand will not exceed consumption. If there is a deliberate production cut-back, as in 1973, consumption itself can be moderately reduced by taxes. Allocation and rationing should be ruled out. Rationing will take too long to start up in an emergency, and allocation did only damage in 1979. No other country suffered the purgatory of long gasoline lines, because no other country tried the impossible job of allocating by month, region, and locality.

With a moderate cut in consumption and a large stockpile, we can ride out even long-drawn supply crises. If so, the chance of such crises becomes very small. A stockpile buys time to respond properly. The nature of that response is another subject.

Of course, the cartel nations are dead set against public or private stockpiles. What is good for us, they consider bad for them, and they should know. They make our policy. A 1975 law created a Strategic Petroleum Reserve. But the SPR was negligible even by late 1978. Then our government agreed to suspend buying for the SPR because the Saudis would not otherwise agree to increase output. They observed the agreement for about ten weeks, and then cut production. We still observe the agreement. A year ago, our Secretary of Energy flew to Riyadh to beg for the royal assent from the King of Saudi Arabia to resume SPR purchases. Permission not granted, so no SPR. Congress has now mandated a derisory 36 mbd a year, only twenty-seven years to build a billion barrel reserve.

When we gave in, we of course got fresh demands in 1980: that our government must pressure private companies into cutting their inventories or else—prices will rise. Again we obliged—and in December prices were again raised. Inventories now shrink as our government wishes, so we are being set up for a fresh price rise this year.

The insecurity will get worse until we recover our wits and our self-respect. The oil producing nations will produce what suits them, and will not be sweet-talked into anything else. Whatever they promise, there is no way of keeping them to their word. The record of broken Saudi promises these past ten years is remarkable. They are no worse than anybody else, but no different from anybody else. We have no bargaining power; we cannot deprive them of food, manufactured goods, or technology, because others will supply them. We cannot deprive them of military protection, because in our own interests we must give it. They need give us nothing to obtain it, so they will give us nothing for it. These nations are like minors who cannot be sued. Hence, anyone who extends them credit is asking to be had.

Things may change, and the cartel may run into serious trouble in years to come, but it would be imprudent to count on it at any given time. To minimize the damage they are doing us, we should decontrol and stockpile, and wait for the situation to change, as change it will.

Newly Established Small Business Development Center Serves Massachusetts Businesses

The School of Business Administration's newly established Small Business Development Center is now providing Massachusetts small businesses with financial, managerial, and technical assistance and training. As a cooperative venture of the U.S. Small Business Administration and the Massachusetts Department of Commerce, the Center offers free counseling for a variety of endeavors including marketing, loan packaging, accounting, and financial planning. The Center provides education and training for business start-ups, financial planning, merchandising, advertising, and management. The Center's information and referral facilities direct businesses to services provided by other agencies. Inquiries about the Center's activities should be addressed to Bryan Nicholas, SBDC Administrator, Room 205, School of Business Administration, University of Massachusetts, Amherst, MA 01003. Phone inquiries can be made at (413) 549-4930, extension 303.

On Performance Reports and Productivity

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The goal of increasing productivity in American industry has lately received increasing attention in a variety of forums. Factors that impede productivity include excessive government interference in business, a tax structure that hinders innovation, poor morale of the workforce, insufficient capital formation, outdated physical plant, and a preoccupation with the short-run. This paper focuses on the way that several of these factors are related to the use of financial control systems and resulting performance reports.

One purpose of a financial control system is to provide a means to appraise the performance of management; another purpose is to effect corporate goal congruence. Performance reports that emanate from such control systems produce a variety of popular performance measures such as residual income, profit growth, and return on investment. These indicators are routinely generated annually. In some companies they are also produced quarterly, or even month-

ly. Despite the variety of performance measures, the key element in most of them is profit. Virtually all will admit that profit (as calculated by the accountant in the short run) is an incomplete measure of performance, and that, at least in theory, it never is intended to be the only indicator of performance. However, two of the strongest motivators of personal behavior in a corporation—status and compensation—are often tied directly to the movement of some profit-related measure. Because the formal information system may focus so narrowly on the profit figure and its corollary performance measures, management's obsession with these indicators is understandable.

Our concern here is with the misuse of performance reports, not with the reports per se. There must be a willingness to look beyond the numbers when evaluating management. Moreover, short-run reports must be interpreted within a long-run framework. Numbers on a report should not be accepted blindly at face value, but should be subject to judgment override (also referred to as common sense). These straight-forward caveats are all too often forgotten in practice. A manager should not be afraid to make a decision that improves long-run productivity because it will look 'bad' on some short-run accounting report. But a 'numbers only, short-run mentality' makes managers reluctant to commit corporate resources to a new product or production process that requires years to bring on-line. Ironically, the way the control system is used might actively discourage the type of long-term strategies that are essential to successful competition in today's world markets.

To illustrate further, consider the following:

- 1) A divisional manager cutting back on supervision and quality control to help get closer to target profit for the next few months;
- 2) Major equipment acquisitions being delayed to avoid a drain on reported earnings during the initial phase of a new project;
- 3) Cutbacks in training and staff development to minimize the level of expenses reported in the current period.

These actions should not be rewarded. Each reduces the company's level of productivity, which depends, of course, on having quality products to sell, adequate capital equipment, and a competent workforce. In each of the above cases it appears that one is more concerned with managing reports than with managing events. Such dysfunctional behavior, if isolated, might be accepted as a necessary cost of running a large-scale enterprise. The growing concern, though, is that such behavior is not an aberration but the norm. As long as performance reports are interpreted literally, without the mitigating force of judgment override, it is reasonable to expect that the following rather cynical and counter-productive ideas will provide the driving force for an individual manager's behavior:

- 1) The only things that count are the things that are counted (i.e., the items included on the performance report);
- 2) Events and reports on those events need not move in the same direction; accordingly, time might better be devoted to managing reports rather than to managing events.
- 3) If one cannot have good performance, at least one can try to have a good performance report.

The January 1981 Massachusetts Economic Policy Analysis (MEPA) Model Forecast

by George Treyz and Roy Williams*

The performance of the Massachusetts economy in 1980 was mediocre on its own merits but extraordinarily good when compared with the rest of the U.S. Unemployment edged up only slightly in Massachusetts while it grew by almost one and one-half percentage points in the U.S. By the last quarter of 1980, the spread between the Massachusetts unemployment rate of 5.5 percent and the national rate of 7.5 percent was two full percentage points. Manufacturing employment declined in Massachusetts by less than one-half of one percent while the drop in the nation was almost three and one-half percent. Total employment increased in Massachusetts in 1980 by 2.6 percent compared with an increase of less than one percent in the nation.

In 1980 Massachusetts experienced an inflation rate of 12.6% while wages increased at a rate of only 7.6%. Both rates of increase were slightly below those in the U.S. The spread between the inflation rate and the wage increase rate of five percentage points is roughly the percentage drop in the real wage per worker. The net effect of the employment changes, the wage changes and changes in property incomes, taxes, and population was a decline of about one percent in Massachusetts real disposable per capita incomes in 1980 compared with 1979. While this drop is undesirable in itself, it appears modest compared with the three and one-half percent drop in U.S. real per capita income.

Against the backdrop of 1980, when the predicted recession in Massachusetts did take place but was barely visible, the MEPA projection for 1981 shows the first two quarters with slight declines in manufacturing employment but with a modest increase in total employment. The net effect is a slight increase in the unemployment rate. The reason that only a moderate effect of further national recession is felt in Massachusetts is that underlying growth in some industries remains strong enough to offset cyclical decline in other industries. After the first half of 1981 the MEPA model shows a growing Massachusetts economy with an unemployment rate moving to 5.0 by 1983, even though the national 1983 rate is 7.1 in the national forecast that we are using as an input to our forecast.

The continuation of the comparatively favorable performance in Massachusetts stems from the continuing relative

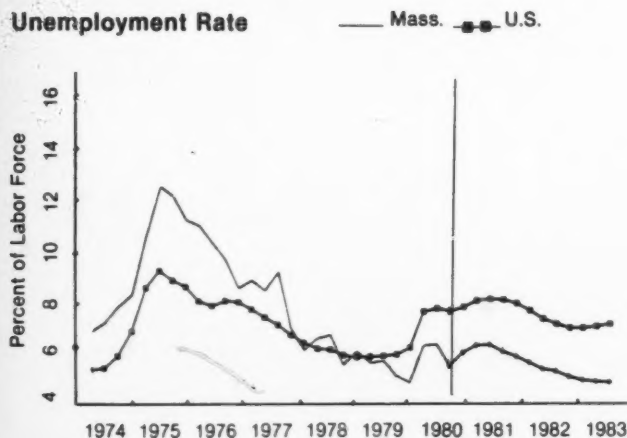
*Director and Associate Director, respectively, of the MEPA project, Economics Department, University of Massachusetts, Amherst, MA 01003. (Tel. 413-545-0915). Technical support was given by staff of the Massachusetts Division of Employment Security. Support from the Legislative Science Resource Office, the Department of Public Welfare, the Executive Office of Economic Affairs, the Division of Employment Security, the Executive Office for Administration and Finance, and Massport. National inputs from CONTROL 122480 from Data Resources Inc.

downward movement in Massachusetts' cost of doing business and from the high representation in industries that will be growing over that period. Another reason for expecting good performance is that high utilization of residential and nonresidential structures due to the growth in some parts of the state will stimulate the construction industry.

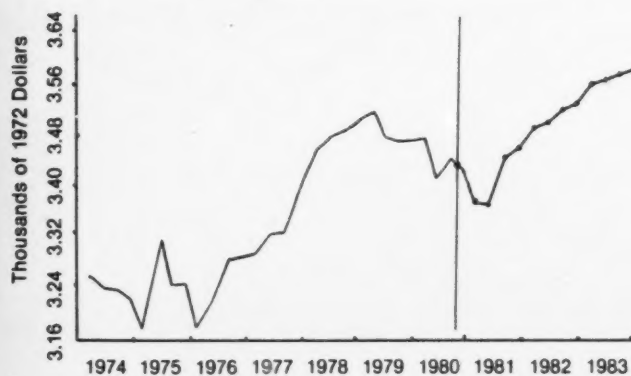
The introduction of Proposition 2½ was taken into account in making the MEPA forecast. It was assumed that some modification in the proposition would occur by fiscal 1983. The overall effect on the forecast was to reduce state and local government employment over the forecast horizon by somewhat more than private employment to be stimulated.

Graphical Representation of Selected MEPA Forecasts

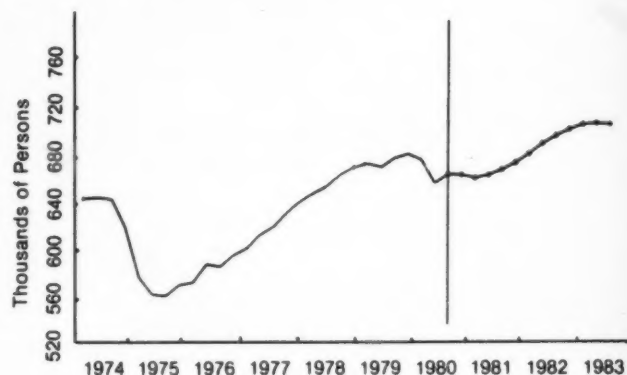
Unemployment Rate



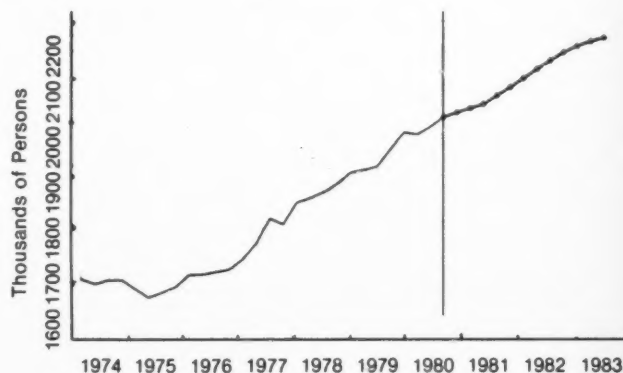
Real Per Capita Disposable Income



Manufacturing Employment



Non-Manufacturing Employment



Massachusetts business and economic report

JANUARY CONTROL FORECAST

SUMMARY REPORT

MASSACHUSETTS ECONOMIC POLICY ANALYSIS MODEL (Seasonally Adjusted Annual Rates)

	1980	1981	1982	1980:4	1981:1	1981:2	1981:3	1981:4
Employment—Nonag. W. & S.	2665	2702	2780	2681	2688	2694	2704	2724
% Change	2.6	1.4	2.9	3.9	1.1	.8	1.5	3.0
Manufacturing	668	663	681	663	662	660	662	666
% Change	-.4	-.7	2.8	4.2	-.3	-1.4	1.4	2.4
Non-Manufacturing	1998	2040	2098	2018	2026	2034	2042	2058
% Change	3.6	2.1	2.9	3.8	1.6	1.6	1.5	3.2
Unemployment Rate	5.7	6.1	5.6	5.5	6.0	6.3	6.3	6.0
Employment Rate Index*	108.0	111.0	112.8	111.0	110.9	110.8	110.9	111.4
% Change	-.6	2.7	1.7	13.0	-.2	-.5	.4	1.8
Relative to U.S. Index*	106.2	109.4	109.7	109.5	109.4	109.4	109.3	109.5
Rate of Wage Change	7.6	9.4	10.4	10.1	7.3	9.9	11.7	10.3
Wage Index Rel. to U.S.*	93.6	94.0	94.0	93.7	93.8	93.9	94.0	94.1
Avg. Weekly Hours in Mfg.	40.0	40.2	40.4	40.1	40.1	40.1	40.2	40.3
Rate of Price Inflation	12.6	11.2	10.2	10.8	13.9	10.5	10.0	9.5
Relative to U.S. CPI*	95.9	95.6	95.4	95.8	95.8	95.7	95.5	95.3
Personal Income (mil\$)	57396	63852	72671	59610	60981	62698	64837	66891
% Change	11.9	11.2	13.8	11.0	9.5	11.8	14.4	13.3
Disposable Income (mil\$)	47837	53407	61194	49589	50684	52075	54600	56270
% Change	11.7	11.6	14.6	9.4	9.1	11.4	20.9	12.8
Real Per Cap. D.I. Index*	105.8	105.2	108.2	105.4	104.0	104.0	106.2	106.6
Relative to U.S.*	104.2	104.8	105.1	103.9	104.3	104.7	105.0	105.2
Rel. Business Cost Index*	96.0	96.1	95.9	96.2	96.1	96.1	96.1	96.1
Manufacturing*	96.1	95.9	95.8	96.0	95.9	95.9	95.9	95.9
Non-Manufacturing*	96.0	96.2	96.0	96.3	96.2	96.2	96.2	96.1

*Indexes equal 100 in calendar 1973.

Massachusetts Business and Economic Report

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Louis Wigdor

Seminars on Business Ethics

Professor Sidney C. Sufrin of the School of Business Administration and Professor Vere Chappell of the Department of Philosophy have received a grant to conduct a series of two or three seminars for business managers on business ethics. There will be no charge for attendance. The seminars will be held in the Spring of 1981 at locations close to the participants. For further information, interested firms or nonprofit organizations are invited to write to Dr. Sidney C. Sufrin, School of Business Administration, University of Massachusetts, Amherst, MA 01003.

The views expressed by contributing authors are not necessarily those of the Report, the School of Business Administration, or the University. The editor welcomes comments about this issue and suggestions for future inclusion.

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